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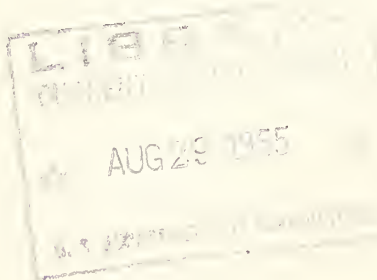
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MINUTES OF THE MEETING OF THE NORTH CENTRAL CORN
BREEDING TECHNICAL COMMITTEE

1955

Reported by
Merle T. Jenkins, Secretary



Field Crops Research Branch
Plant Industry Station
Beltsville, Maryland
349CC-April 1955

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NORTH CENTRAL CORN BREEDING TECHNICAL COMMITTEE

Minutes of the meeting held in the LaSalle Hotel, Chicago,
Illinois, March 1 and 2, 1955

Chairman Jugenheimer called the meeting to order at 10:00 a. m. in the Douglas room of the LaSalle Hotel. The following individuals attended the Committee meetings.

Roster of Attendance

<u>Illinois</u>	- R. W. Jugenheimer	<u>Nebraska</u>	- J. H. Lonnquist
	- D. E. Alexander		
	- E. R. Leng	<u>North Dakota</u>	- Wm. Wiidakas
	- G. B. Clary		
<u>Indiana</u>	- N. J. Volk	<u>Ohio</u>	- G. H. Stringfield
	- A. J. Ullstrup	<u>Oklahoma</u>	- J. S. Brooks
	- W. J. Wiser		
<u>Iowa</u>	- G. F. Sprague	<u>Ontario</u>	- G.F.H. Buckley
	- F. F. Dicke	<u>Quebec</u>	- C. G. Mortimore
	- L. H. Penny		
<u>Kansas</u>	- L. A. Tatum	<u>South Dakota</u>	- D. B. Shank
		<u>U.S.D.A.</u>	- M. T. Jenkins
<u>Michigan</u>	- E. C. Rossman		H. M. Steece
<u>Minnesota</u>	- E. H. Rinke	<u>Wisconsin</u>	- N. P. Neal
	- E. L. Pinnell		- A. M. Strommen
<u>Missouri</u>	- C. O. Grogan		

Dr. N. J. Volk, Associate Director, Purdue University Agricultural Experiment Station attended all committee sessions as Administrative Advisor.

The minutes of the meeting of March 3 and 4, 1954 were approved as prepared and distributed by G. H. Stringfield, Secretary.

Dr. Volk reported that the Directors of the North Central Agricultural Experiment Stations were pleased with the objectives and organization of the North Central Corn Technical Committee as accomplished at the 1954 meeting and approved the new organization. He indicated, however, that the Directors preferred the committee name to be as follows:- "North Central Corn Breeding Technical Committee."

Dr. Volk also had notified Chairman Jugenheimer in June 1954 that the Directors had approved the modifications to the policy on the DELAYED RELEASE OF INBRED LINES recommended by the N. C. Corn Breeding Technical Committee at its 1954 meeting and reported on page 4 of the minutes of that meeting.

Discussion on the Testing of Coded Hybrids

Dr. Volk indicated that questions had been raised with some of the North Central Directors regarding the testing of commercial hybrids with coded pedigrees. In view of these questions the following action was taken by the Directors at their meeting in the spring of 1954.

"It was moved and passed by the North Central Directors that the North Central Regional Corn Improvement Technical Committee consider the problem of corn yield tests and report back to the North Central Directors."

G. F. Sprague reported on the reorganization of the Iowa Corn Yield Test in response to a request for information on this subject. Objections recently were raised to the testing of commercial hybrids in the Iowa Corn Yield Test. The difficulties seem to have arisen because the rules and regulations of the Yield Test have not kept abreast of the changes in the pattern of commercial hybrid seed corn production. A series of meetings were held during the past winter and a new set of regulations were adopted which seem reasonably satisfactory to everyone concerned. The Iowa Yield Test is going ahead under these new regulations.

N. P. Neal inquired as to how many States in the region now conduct official yield tests in which commercial hybrids with coded pedigrees are included. The replies from the various states are summarized in the following table:

Table 1. Summary of present policies relating to State Corn Yield Tests.

State	:Is a State: :yield test: :now in :operation :	Are :commercial: hybrids : tested :	Fee charged for each entry	: : Number of replications : for the fee charged :
Illinois	Yes	Yes	\$15.00	5 or 6
Indiana	Yes	Yes	\$20.00	5
Iowa	Yes	Yes	\$15.00	6
Kansas	Yes	Yes	\$12.00	5
Michigan	Yes	Yes	\$14.00	6 replications - 2 rates of planting
Minnesota	Yes - for maturity only	Yes	\$15.00	3 repls. at each of 3 or more locations
Missouri	Yes	Yes	No chg.-entries limited 3 per Co. per location	4
Nebraska	Yes	Yes	\$15.00	4
No. Dakota	Yes	Yes	\$10.00	5
Ohio	No	No	---	---
Oklahoma	Yes	Yes	\$65.00	6 tests with 4 replica- tions per test
Ontario	Yes	Yes ^{1/}	\$10.00	4
So. Dakota	Yes	Yes	No charge	4
Wisconsin	No	No ^{2/}	---	---

^{1/} All corn imported into Canada and sold for seed must be licensed and that produced in Canada must be registered. Licensing requires an official testing under the direction of the Corn Committee. The fee is \$10 per entry per test, limited to 5 entries per company per test. The results are summarized but not published.

^{2/} All hybrid seed must be certified in order to be sold in Wisconsin. Hybrid seed commercially produced in Wisconsin is tested in order to make it eligible for certification. The fee is \$10 per hybrid per location. The results are not published.

Following the reports from the states represented at the meeting there was an extended discussion of the advantages and disadvantages of testing commercial hybrids with coded pedigrees.

It was MOVED by N. P. Neal that the Committee recommend to the North Central Directors that the setting up of uniform procedures for the testing of commercial hybrids is not warranted at the present time as the review of the situation in all of the States within the region and in the Canadian Provinces indicated no serious problems in this respect.

Motion seconded by J. H. Lonquist and
carried unanimously

It was MOVED by G. F. Sprague that this Committee recommend the conducting of State testing programs of hybrids and that there be no discrimination between closed and open formula hybrids in these tests. Considerations as to fees and other details must be left to the individual states.

Motion seconded and passed unanimously

Tests of AES hybrids

Data on the 1954 tests of AES hybrids and candidates for AES designations were presented by the chairman of the committees on uniform tests.

E. C. Rossman presented the data on the AES hybrids of the 500 and 600 maturity series reported in table 2.

J. H. Lonquist presented the data on the AES hybrids of the 700 and 800 maturity series reported in tables 3 and 4.

L. A. Tatum presented the data on the AES hybrids of the 900 maturity series reported in table 5.

Table 3, Data on the performance of AES hybrids and candidates of the 700 maturity series.
Summarized by J. H. Lonnquist.

Tests conducted in 1954												
	1	2	3	4	5	6	7	8	9			
Hybrid	: Stand:	: Yield:	: H ₂ O	: Silking:	: Root:	: Stalk:	: node	: Ear:	: Dropped:	: Smut:	: Borer:	: Husk
	Pct.	Bu.	Pct.	Days	Pct.	Pct.	In.	Pct.	Pct.	Score	Score	Pct.
Ia.4297	86.8	90.1	21.9	73.5	2.5	8.8	40.0	4.1	5.0	4.0	1.5	0.2
AES702	86.8	105.6	21.4	75.5	0	5.8	41.0	3.1	2.0	2.5	0.5	0.1
Ind.1405	81.9	100.8	19.8	72.3	2.0	7.3	34.7	2.4	1.0	3.0	2.5	0.2
Ohio 3247	91.3	97.5	20.8	71.5	1.2	8.0	38.5	2.3	2.0	4.0	0.5	1.4
Ill. 1873	90.0	100.6	21.6	74.0	1.2	4.6	37.8	3.5	2.0	2.5	0.8	0.6
Ill. 1831	87.4	102.1	22.6	73.2	0.5	10.0	40.0	2.9	2.0	4.0	0.8	0.7
Ill. 1814	84.8	107.8	23.2	74.8	1.5	8.5	40.5	2.6	0	3.0	0.8	0.4
Ind. 2401	88.8	99.6	22.2	71.5	2.0	11.1	38.3	2.9	3.0	4.5	0.5	1.0
Means	87.2	100.5	21.7	73.3	1.4	8.0	38.8	3.0	2.1	3.4	1.0	0.6

Three-year averages-1952-54

Hybrid	: Acre:	: Moist-	: Days:	: Plants:	: Ear:	: : Broken:	: Smutted:	: Corn:	: Husk:	: H	: : Elight	: score
	: Stand:	: grain:	: ure at	: to	: root	: : plants:	: ears	: plants:	: ears:	: ears:	: ears:	: ears:
	Pct.	Bu.	Pct.	No.	Pct.	In.	Pct.	Pct.	Score	Pct.	No.	Pct.
Ia.4297	85.9	79.0	17.6	70.6	2.1	4.0	37.5	3.8	3.3	4.5	0.5	4.0
AES 702	90.3	88.9	18.5	72.0	2.1	3.6	40.4	2.8	1.1	4.2	0.5	2.5
Ind.1405	83.2	85.7	16.9	69.9	1.7	3.0	33.2	2.7	2.5	4.5	0.7	3.0
												2.5
1. Ind., Ia., Ill., Ohio												
2. Ind., Ohio												
3. Ind., Ia., Ill., Beltsville												
4. Iowa, Illinois												
5. Ind., Iowa, Illinois												
6. Indiana												
7. Beltsville												
8. Iowa												
9. Ohio												

Pedigrees

Ia.4297 (WF9 x I205)(M14 x 187-2)
 AES 702 (WF9 x Hy2)(M14 x G103)
 Ind. 1405 (H11 x H142)(H15 x H16)
 Oh3247 (Oh51A x W22)(Oh43 x Oh45)
 Ill. 1873 (M14 x G103)(R75 x Oh43)
 Ill. 1831 (WF9 x W146)(K237 x Oh45)
 Ill. 1814 (WF9 x Hy2)(M14 x Oh45)
 Ind. 2401 (WF9 x M14)(K237 x Oh45)

Table 4. Data on the performance of AES hybrids and candidates of the 800 maturity series. Summarized by J. H. Lonnquist.

Tests conducted in 1954

	1	2	2	3	4	1	5	5	6	7	8	9	10
Hybrid	Stand	Yield	H ₂ O	Silking	Root	Stalk	Ear	Dropped	Smut	Blight	Borer	Husk	Ear
							node	ears		H. t. H. m.			worm
	Pct.	Bu.	Pct.	Days	Pct.	Pct.	In.	Pct.	Pct.	Score	Score	Pct.	Score
U. S. 13	81.0	69.1	16.8	69.2	8.9	14.4	40.5	9.0	5.2	4.0	2.0	4.0	0.5
A.E.S. 801	82.3	66.2	16.7	69.5	2.9	3.6	36.0	3.1	4.5	4.0	3.0	4.6	0.4
A.E.S. 802	80.6	62.6	17.3	68.8	6.4	3.4	38.0	5.8	16.4	4.0	0.5	4.1	0.3
A.E.S. 803	80.3	58.2	17.1	69.2	14.5	5.7	37.2	3.6	20.8	3.0	0.5	4.3	0.4
A.E.S. 805	84.6	50.8	17.0	68.5	11.7	2.6	36.5	1.6	17.7	3.0	0.5	3.6	0.3
A.E.S. 806	83.3	70.8	18.6	65.5	7.0	6.8	37.2	5.4	6.3	3.0	2.5	4.3	0.6
Ill. 6075	82.4	54.3	16.4	69.0	24.0	19.6	37.4	7.1	5.7	4.0	2.0	4.3	0.4
Ia. 4615	82.4	60.9	16.7	69.5	5.2	5.1	38.2	3.6	10.8	4.0	2.0	4.6	0.9
Ohio 4808	86.7	61.2	17.2	68.2	11.6	8.5	37.0	0.6	10.1	2.5	0.8	3.3	0.7
Ind. 9502	86.8	74.2	17.5	68.8	7.5	4.0	37.0	1.8	3.8	4.0	2.5	4.3	1.0
Ill. 1767	82.5	58.6	17.2	68.0	5.4	5.2	39.4	5.2	18.9	3.0	2.0	3.6	0.6
Ill. 1813	88.2	56.8	17.7	68.8	10.1	4.0	38.1	2.6	10.6	2.5	0.8	3.3	0.9
Ill. 6021	80.0	66.3	17.2	71.5	17.9	11.6	46.6	9.2	4.0	3.5	2.0	4.4	0.4
Ind. 2609	91.9	69.8	16.3	68.5	2.9	11.4	37.8	4.9	6.3	4.0	0.8	3.5	0.4
Means...	83.8	62.8	17.1	68.8	9.7	7.6	38.3	4.5	10.1	3.5	1.6	4.0	0.6

	Pedigrees
1. Ill., Iowa, Kans., Mo., Beltsville	
2. Ill., Iowa, Kans., Mo., Ohio	
3. Mo., Ohio	U. S. 13 (Wf9 x 38-11)(Hy x L317)
4. Ill., Iowa, Kans., Mo., Beltsville	A.E.S. 801 (Wf9 x 37)(B14 x B10)
5. Ill., Iowa, Kans., Mo.	A.E.S. 802 (Wf9 x Hy2)(N6 x 38-11)
6. Ill.	A.E.S. 803 (Wf9 x 187-2)(N6 x K148)
7. Beltsville	A.E.S. 805 (Wf9 x 38-11)(C103 x Oh45)
8. Iowa	A.E.S. 806 (Wf9 x Hy)(N6 x N15)
9. Ohio	Ill. 6075 (R75 x R83)(R78 x R87)
10. Kans.	Ia. 4615 (Wf9 x Hy)(B14 x B36)
	Oh4808 (Oh40 x Oh51A)(Oh28 x Oh45)
	Ind. 9502 (H26 x H27)(H28 x H29)
	Ill. 1767 (Wf9 x 38-11)(Hy2 x Oh45)
	Ill. 1813 (Wf9 x Hy)(C103 x Oh45)
	Ill. 6021 (R75 x R76)(R84 x K4)
	Ind. 2609 (Wf9 x 38-11)(Oh43 x H14)

Table 4. (Cont'd.)

A.E.S. Hybrids and Candidates

800 Series - 2-year average, 1953-1954

Hybrid	Stand	Yield	H ₂ O	Silking	Root	Stalk	Ear node	Dropped ears	Smut	Leaf blight H. t. H. m. B. s. I.	Borer ² /Husk	Ear worm ²			
:	%	Bu.	%	Days	%	%	In.	%	%	Score	Score	%	Score		
U. S. 13	86.1	71.0	15.0	69.5	6.1	11.0	42.4	7.2	3.7	3.0	2.2	1.3	4.0	0.5	3.6
A.E.S. 801	87.4	70.8	15.2	69.5	1.8	2.4	37.1	1.9	2.2	2.8	2.8	2.8	4.6	0.7	4.4
A.E.S. 802	86.8	69.9	15.0	68.0	4.0	4.4	39.3	4.4	8.2	2.8	1.0	1.3	4.1	0.4	4.0
A.E.S. 803	86.0	65.0	15.4	68.5	8.0	4.5	37.6	2.7	13.0	2.5	1.0	1.0	4.3	0.7	4.1
A.E.S. 805	87.8	64.2	15.9	68.4	6.0	2.8	38.0	2.0	9.7	1.9	0.6	0.8	3.6	0.4	4.3
Ill. 6075	85.9	59.6	14.7	68.8	13.8	14.0	38.7	5.6	3.7	3.0	2.2	1.5	4.3	0.7	4.2
Ia. 4615	85.0	66.0	15.4	69.0	2.6	4.1	40.2	2.8	5.4	2.6	1.8	2.2	4.6	0.8	3.9
Ohio 4808	90.1	66.0	15.6	67.3	7.1	7.2	37.7	1.0	5.5	1.5	0.8	0.7	3.3	1.0	4.0
Ind. 9502	88.4	73.4	16.1	68.3	4.6	2.8	37.7	1.4	2.5	3.0	2.8	2.5	4.3	1.2	3.7
Ill. 1767	88.4	66.4	16.1	67.4	3.2	4.8	40.3	3.8	10.5	2.8	1.8	1.0	3.6	0.8	2.0
Ill. 1813	90.0	65.8	16.4	68.0	5.5	3.5	39.5	1.9	6.0	1.5	0.8	0.5	3.3	0.8	4.6

1/ 1953 data only. Bacterial wilt.

2/ 1954 data only.

Summarized by L. A. Tatum

TESTS CONDUCTED IN 1954

1	2	3	4	5	6	7	8	9	10	11	12					
Hybrid	Acre Moisture Grain in grain Stand Yield at Harvest	Planting to silking days	Root Lodged Plants %	Plants Broken Below %	Ear- node Height In.	Dropped Ears %	H. Tercium Score	H. Maydis Score	Leaf Fir-Borer ing	Husk Ears %	Harvested Ears per 100 plants	Shelling Worm %	Ear Grade			
Mo862	88.9	48.7	16.7	72.8	2.3	14.7	34.5	2.8	2.5	.5	1.9	3.9	0.7	98.4	76	4.5
Mo804	86.9	49.7	15.8	72.0	6.5	18.6	30.9	3.0	4.0	.5	1.0	4.3	0.2	102.6	77	4.2
Ill.1852	88.7	49.5	15.3	72.0	6.6	14.6	32.3	0.0	3.0	.8	1.8	3.6	0.2	97.0	77	4.4
Ill.1850	81.2	49.4	16.6	73.3	7.8	10.3	32.3	1.9	1.5	0	2.0	3.5	0.4	93.8	79	4.1
ALS903W	90.9	51.4	17.5	70.8	7.0	11.0	25.0	2.6	3.0	2.5	2.2	4.4	0.5	97.7	74	4.4
Mo801OW	97.5	64.2	17.2	73.5	3.3	17.7	31.1	2.2	3.0	.5	1.0	4.0	0.9	144.3	77	3.6
													Pedigrees			
1							Ohio	Kan.	Ill.				Mo862(K201xT202)(CI.2LEto567)			
2							x	x	x				Mo804(CI.7xK4)(38-11xCI.2LE)			
3							x	x	x				Ill.1852(CI03xCI.2LE)(38-11xto07)			
4							x	x	x				Ill.1850(CI03xCI.2LE)(38-11xT201)			
5							x	x	x				ALS 903W(H28xK55)(H30xK41)			
6							x	x	x				Mo801OW(K6LxMo22)(T11xT115)			
7																
8																
9							x									
10																
11							x									
12																
Two Year Average:																
Mo862	92.7	56.0	16.7	73.4	3.5	14.9	40.8	2.2	1.4	.5	4.2	1.2	1.2	100.5	74.5	
Mo804	89.9	53.6	15.6	73.5	5.9	15.9	39.9	1.8	2.4	1.0	3.4	.6	.6	101.1	74.0	
Ill.1852	91.5	57.6	15.2	72.7	4.5	12.2	39.4	.4	1.9	.9	4.1	.4	.4	95.7	74.0	
Ill.1850	87.9	52.7	16.5	73.4	4.8	7.6	39.6	1.9	1.2	.2	3.9	.7	.7	96.7	74.5	

It was MOVED by E. C. Rossman that Indiana 0421 (WF9 x M14) x (B9 x W22) be approved as AES512.

Motion seconded by G. F. Sprague and
carried unanimously

W. J. Wiser reported that seed stocks are not available for the commercial production of this hybrid in the coming season.

W. J. Wiser indicated that Indiana is interested in the release of Indiana 1405 for commercial production. No other State indicated interest in this hybrid for an AES designation. It probably will be assigned a permanent Indiana number and approved for production in Indiana.

It was MOVED by G. F. Sprague that the white hybrid Indiana 9502 (H26 x H27) x (H28 x H29) be approved as AES807W.

Motion seconded by G. H. Stringfield
and carried

W. J. Wiser indicated that seed stocks are not available for the commercial production of this hybrid in 1956 but that they will be increased immediately. He also indicated the following origin of the four white lines used as parents of this hybrid.

H26	White	M14
H27	"	L
H28	"	Hy
H29	"	205-2

Report of the Committee on Uniform Tests in the 100,
200 and 300 Maturity Series

Inbred observation is to be continued in 1955 with the following four new inbred lines added: - A502, A556, A495 and M103.

New seed of all of the possible single crosses among the following 7 inbred lines will be produced for testing in 1956: ND203, CML45, CMR5, MS1334, SD105, A494, and A90. (SD48 and W79 may possibly be added).

The following double crosses tested in 1954 were selected for retesting in 1955.

100 to 200 Maturity Series

CB1210 (WD x ND203) x (CMV3 x W103)
N.Ex.26 (W33 x A116) x (A90 x ND203)
N.Ex.39 (W33 x A111) x (W103 x ND203)

Standards

Morden 77
Wis. 240
Wis 255

250 to 300 Maturity Series

CB1326 (ND52 x ND230) x (W65 x A90)
CB1329 (W33 x ND203) x (A90 x W79A)
CB1338 (W33 x A90) x (W79A x ND203)
CB2301 (SD26 x MS1334) x (W59 x A509)
CB2302 (SD26 x W59M) x (A509 x MS1334)
CB2310 (CMD5 x A509) x (W59M x MS1334)
CB2326 (CMR5 x MS1334) x (SD26 x W59M)
CB2329 (CMR5 x A509) x (W59M x MS1334)
CB2353 (CMD5 x A509) x (W59M x A508)
CB2359 (CMR5 x MS1334) x (W59M x A509)
CB2368 (CMD5 x A509) x (A508 x MS1334)
CB2380 (CMD5 x W59M) x (A513 x MS1334)
NL11 (CMR5 x Ma139A) x (W59M x A508)
NL12 (CMR5 x MS1334) x (W59M x A508)
NL19 (A498 x W703) x (A508 x MS1334)
NL20 (W59M x Ma139A) x (A498 x A509)
NL21 (CMR5 x A509) x (A498 x MS1334)
NL27 (A498 x MS1334) x (A508 x A509)
NL31 (CMR5 x MS1334) x (W59M x A498)
M103 (A495 x A509) x (A502 x A556)

Standards - Wis. 279
SD220
Wis. 355

E. H. Rinke
A. M. Strommen
Wm. Wiidakas, Chairman

Report of the Committee on Uniform Tests in the
400, 500, and 600 Maturity Series

All possible single crosses of 10 inbreds (45 crosses) were tested at eight locations in 1954 - Illinois, Indiana, Iowa, Michigan, Minnesota, (2 trials), Nebraska, and Wisconsin. The inbreds were:

ML4 (Br10 x R8)	A295 (A334 x L317)
BL4 (Stiff Stalk Synthetic)	A297 (A340 x Mo.940)
B21 (Fe x St.665)	A545 (A334 x Oh7)
A223 (A374 x G14) A374	Oh26A (Oh26 x Oh56) WF9
A239 (A73 x A347)	W64A (WF9 x 187-2)

Seed of most of the possible single crosses among 11 inbreds (55 crosses) was produced in 1954 in Michigan. Seed stocks of some crosses are short and a few crosses were missed. Seed for 1955 testing was requested by: Illinois, Missouri, Ohio, Indiana, Minnesota, Iowa (including corn borer), Michigan, and USDA blight. The 11 inbred lines are:

Oh431
MS213 (Oh ML5 (Oh51 x Oh26)(A x W23)
MS214 - Sprague's SSS received in 1944
A427 (CC36 x A405)
A430 (A131 x A230)
W56 (WML3 x W6)(WML3 x WR3) x Ia.817)
W182D (WD x W22)
W126 (Ill. 90 x US187-2)
W22R Recovered W22
Mo.1864 (WF9 x ML4)
Mo.1865 (WF9 x ML4)

The committee is contemplating either single cross or three-way seed production in 1956 if sufficient lines are nominated. No seed production is planned for 1955.

N. P. Neal
G. H. Stringfield
E. C. Rossman, Chairman

Report of the Committee on Uniform Tests in the 700
Maturity Series

G. H. Stringfield collected a total of 20 lines and made testcrosses with WF9 x B14 and Oh28 x Oh43.. Seed of 32 items including a double cross involving the two tester singles is available for testing in 1955. The test crosses available are as follows:

<u>Inbred</u>	<u>WF9 x B14</u> No. of seeds	<u>Oh28 x Oh43</u> No. of seeds
1. B39 SSS459	3235	27
2. B40 SSS500	4000	1613
3. B35 [701(462) x 198] 4c-2c-1s	1300	1500
4. Oh460 (W8 x 40B)	3000	5850
5. Oh480 (M14.187-2) x Oh45	3750
6. Oh481 do	2000
7. N.9206 Lan.	3500	5660
8. N14	347
9. K1603-1-3	4900	6200
10. N32	2350	6000
11. N6	5400	3843
12. N6/HG 91310-2	3800	5029
13. N6/HG 91311-4	2300	970
14. N6/HG 91313-4	4600	5336
15. N6/HG 91336-5	4300	5200
16.. B14	2700
17. WF9	2900
18. Oh45	3100
19. Oh43	3300
20. Oh28	3800
21. (WF9.B14) x (Oh28.Oh43)	14,500K	

Yield tests of the above crosses will be conducted in Illinois, Ohio, Iowa, Nebraska, Missouri and Indiana. Tests for blight resistance will be conducted at Beltsville.

G. H. Stringfield
G. F. Sprague
J. H. Lonnquist, Chairman

Report of the Committee on the Uniform Tests in
the 800 Maturity Series

Fourteen lines were testcrossed with WF9 x Hy and WF9 x 38-11 by G. F. Sprague and J. H. Lonnquist. The testcrosses available for 1955 testing are as follows:

<u>Inbred</u>	<u>WF9 x Hy</u>	<u>WF9 x 38-11</u>
1. B38 (B10 x H.O.)B ₂	X	X
2. K720 Kan. O.P.	X	X
3. K721 Kan O.P.	X	X
4. K722 Kan. O.P.	X	X
5. N15 Krug Reid	X	X
6. N25 Reid	X	X
7. N35 Krug	X	X
8. R109B Corn borer syn.	X	X
9. R127 Corn borer syn.	X	X
10. R129 Corn borer syn.	X	X
11. R154 Corn borer syn.	X	X
12. L317	X	X
13. 38-11	X	..
14. Hy	-	X

Yield tests of the above crosses will be conducted in Iowa, Illinois, Missouri, Indiana, Oklahoma, Nebraska and Kansas. Tests for blight resistance will be conducted at Beltsville.

G. F. Sprague
G. H. Stringfield
J. H. Lonnquist, Chairman

Report of the Committee on the Uniform Tests in
the 900 Maturity Series

1. AES hybrids and candidates.

Results of 1954 tests were summarized and presented for consideration by the Technical Committee. No AES designations were assigned but plans were made to re-test some of the hybrids in 1955. To be tested in 1955 are Mo804, AES903W, Mo810W, US523W, Ill. 1852, and Ill. 1850.

2. Tests of Uniform 3-way crosses.

1954 tests--A group of 3-way crosses with K201 x 38-11 was tested. A list of the inbreds included and the states growing the test is given on pages 26 and 27 of "Final Report of the Corn Improvement Conference of the North Central Region" dated April 1954. The data from these tests was assembled and summarized by Wm. R. Findley, Jr. They are to be mimeographed and distributed to the cooperators.

1955 tests--For 1955 tests Virginia and Kansas crossed K55 x H28 with the following white inbred lines:

K64	K734
CI.64	K735
Ky49	K738
CI.49A	K739
CI.49B	K745
Mo21A	K693
Mo9187W	K694
K723	K697
K731	K755 (53:812)

Seed of these white 3-way crosses will be distributed from Kansas.

Illinois and Missouri crossed 38-11 x K201 by the following inbred lines:

R71A	R127
R74	R128
R75	R129
R83	R154
R84	Mo9150
R89	Mo0221
R101	Mo1853
R105	Mo01930
R109B	Mo01260
R118	Mo01268
	Mo1918

Seed of these yellow 3-way crosses will be distributed from Illinois.

The 1955 tests of 3-way crosses are to be tested as outlined below:

	<u>White crosses</u>	<u>Yellow crosses</u>	<u>Amount of seed</u>
Blight (Beltsville)	x	x	100K
Corn Borer (Iowa)	x	x	75K
Oklahoma		x	250K
Kansas	x	x	400K
Illinois	x	x	250K
Missouri	x	x	400K
Virginia	x	x	360K

1956 tests--Missouri will produce seed of a set of yellow topcrosses involving Mo804 (CI.7 x K4) (38-11 x CI.21E) as tester. Thirty kernels of each line to be included should be sent there.

Kansas will produce seed of white topcrosses on AES903W (K41 x H30) (K55 x H28). Thirty kernels of each inbred line to be included should be sent to Kansas.

Wm. R. Findley, Jr.
M. S. Zuber
L. A. Tatum, Chairman

Deadline on seed shipments for the 1956 Experiments

It was decided that all seed for the 1956 cooperative experiments must be in the hands of cooperators not later than April 1.

Report of the Committee on Maturity Studies

Data are presented on eight corn hybrids grown at five locations in 1953 and 1954. (See table 6.)

Each hybrid was replicated three times for weekly harvest.

Five weekly harvests were obtained at each location. At Madison, Wisconsin, the first weekly harvests were begun August 19th to August 26th. At the other locations the first weekly harvests were begun September 3rd to September 7th.

Growing degree days are reported for the period from planting date to harvest date.

Moisture at harvest is total moisture in ear corn at harvest.

The dried, shelled corn remaining on top of an 18/64 sieve was used for the 1000 kernel count for gram weight.

RESULTS AND OBSERVATIONS

The total number of growing degree days required to mature a certain hybrid down 40% moisture at harvest, varies considerably for all locations.

At any one location the total number of growing degree days required to mature the 80 relative maturity hybrids down to 40%, is always less than the total required for the later maturing hybrids.

The southern locations require less actual number of days to accumulate sufficient growing degree days to mature corn to 40% moisture than the northern locations.

The gram weight per 1000 kernels remains quite constant after moisture is down to 40%.

The shelling percentage also remains quite constant after moisture is down to 40%.

All locations suggest that this method of maturity evaluations can be very useful for assigning one definite maturity to a given hybrid.

The average values also indicate that some of the present hybrids are out of line in their maturity ratings.

E. H. Rinke
E. C. Rossman
William Wiidakas
A. M. Strommen, Chairman

Table 6. Average values obtained at 5 locations for 8 hybrids harvested at weekly intervals in 1953-1954.

Hybrid	: :Weekly :harvest	:Growing degree: : days from : planting	: Moisture: : at : harvest	:Gram weight: : of 1000 : kernels	: Shelling : %
Morden 77 (78-82)*	1st 2nd 3rd 4th 5th	1809 1884 1941 2003 2045	56.3 50.3 46.6 40.1 36.2	193 224 241 248 253	78.9 81.9 82.8 83.7 83.9
W240 (82-86)*	1st 2nd 3rd 4th 5th	1809 1884 1941 2003 2045	54.0 48.7 45.9 40.9 38.2	201 229 246 259 264	79.2 81.9 82.3 83.6 83.8
W255 (82-86)*	1st 2nd 3rd 4th 5th	1809 1897 1951 2008 2050	57.0 50.7 47.2 41.8 38.2	205 240 259 274 275	81.5 84.3 85.0 85.8 85.7
N.D.301 (84-88)*	1st 2nd 3rd 4th 5th	1809 1897 1951 2008 2050	59.1 51.7 47.6 40.4 37.7	186 224 243 255 256	75.6 79.0 80.0 80.9 81.1
W279 (86-90)*	1st 2nd 3rd 4th 5th	1827 1911 1968 2014 2063	59.3 53.7 49.7 44.2 39.7	194 229 248 260 267	76.8 80.1 81.1 82.5 82.8
W275 (87-91)*	1st 2nd 3rd 4th 5th	1809 1897 1951 2008 2050	63.5 56.2 52.7 46.3 43.1	188 231 253 269 276	77.2 80.8 83.1 83.7 84.6
W355 (93-97)*	1st 2nd 3rd 4th 5th	1839 1920 1973 2019 2063	66.3 59.2 55.0 49.8 45.3	172 217 243 267 277	73.9 78.4 80.0 81.6 81.9
Minn.608 (99-103)*	1st 2nd 3rd 4th 5th	1839 1920 1973 2019 2063	67.7 61.3 56.9 50.4 44.8	153 192 219 235 249	71.1 77.3 79.5 81.2 82.3

* Minnesota Maturity Rating in days.

Report of the Committee on Cytoplasmic Male Sterility

This report covers uniform testing of cytoplasmic male sterile versions of WF9 and suggestions on terminology for various sources of cytoplasmic male sterility and fertility-restoring factors.

1. 1954 Uniform Test of Male Sterile WF9's.

This test included the S and T sources of cytoplasmic sterility, each contributed by Indiana and Nebraska, and the 33-16 source, contributed by Illinois. The various sterile versions of WF9 were crossed by the following male parents:

M14	Oh51A
Hy	38-11
L317	38-11 ("proven sterile" from Indiana)

The fertile versions of the same hybrids also were included in the test.

Yield tests were conducted at Nebraska and Illinois. Both tests failed because of drought, and no yield results are reported.

Observations of fertility and sterility were made at 11 locations. All data have not yet been reported to the chairman, as soon as they are received, they will be summarized and distributed. Preliminary examination of the data available indicates that the expression of sterility in some of the hybrids varied with location.

2. Further Uniform testing of cytoplasmic steriles.

The committee recommended that a new uniform test of male-sterile versions of WF9 be conducted in 1956, with seed being produced in 1955.

Nominations were asked for such a test. The following stations indicated that they could furnish strains of WF9 carrying the T source of cytoplasmic sterility:

Iowa	Indiana
Illinois (2)	Ohio
Nebraska	Wisconsin

Indiana also indicated that it could furnish a WF9 with the S source of sterility.

The question of pollinators was discussed, and it was generally agreed that selected strains of desirable pollinators should be used. The following were suggested:

<u>Pollinator</u>	<u>Source</u>
ML4	Indiana selection
38-11	" "
Hy	" "
	Ohio "
Oh51A	Ohio
W22R	Wisconsin

It was suggested that the committee work out the remaining details of the test and make arrangements for the production of seed in 1955.

Four states indicated that they would be interested in growing yield tests of this material, and several others indicated interest in making observations of sterility.

The committee suggested that Florida winter observations also be made on this material.

3. Designation of various sources of cytoplasmic male sterility and fertility restoration.

The committee chairman has been in communication with the committee on male sterility of the Southern Region on this subject, and attended a meeting of the Southern committee in Florida recently at which the following suggested terminology was agreed upon by the Southern group:

<u>WF9</u>	<u>cms 1 (or 2, 3, etc.)</u>	<u>RF 2 (1, 3, etc)</u>
<u>Line</u>	<u>Source of cytoplasmic sterility</u>	<u>Fertility - restoration factor</u>

The N. C. committee did not make a recommendation as to terminology, but did recommend that an agreed terminology be developed and put into use by all three regions (N.E.; N.C.; and S).

After some discussion, it was agreed that this matter should be brought up by Mr. Stringfield at the Northeastern Conference, and that the three regional committees should attempt to work out an agreed terminology.

Earl R. Leng, Chairman

Report of the Committee on the Preservation of Germ Plasm

The maintenance of original open-pollinated varieties is being well cared for. A total of more than 200 strains are being maintained and each state in the region is participating.

Eight states now have cold storage facilities of their own.

The most common method of seed increase is sib pollination by hand. Only four states increase by wind pollination in isolation.

Data from J. D. Sayre on the germination of 20-year old stored seed were presented. Seven lots averaging 11.2 percent of moisture were sealed in 1- by 8-inch glass containers in 1933. The seed was stored at room temperature a few years. Germination tests were conducted in field soil, in greenhouse soil flats, and in blotting paper germinator in 1954. The seven samples averaged 92 percent strong sprouts with a high of 95 and a low of 86 in field soil. Similarly in greenhouse soil flats the average was 98; high 100, low 98. In the blotting paper germinator the average was 97, high 98, low 96. The conclusion is that good seed can be maintained in a strongly viable condition for at least 20 years.

Attention was called to "Collections of Original Strains of Corn" recently published by the Committee on Preservation of Indigenous Strains of Maize, Division of Biology and Agriculture, Agricultural Board, National Research Council.

D. B. Shank
E. H. Rinke
G. H. Stringfield, Chairman

Uniform Designation of Inbred Lines

M. T. Jenkins reported that when the Committee on the Uniform Designation of Inbred Lines and Hybrids was disbanded in 1950 it had not assigned uniform prefixes to inbred lines developed in Canada or Massachusetts. As two new lines from Canada and one from Massachusetts are entered in the 1954 early uniform tests it seemed desirable to have uniform prefixes assigned to them. Correspondence with the parties concerned resulted in agreement on the following prefixes:

<u>Station</u>	<u>Prefix</u>
Canada, Harrow Station	CH
" Morden "	CM
" Ottawa "	CO
" MacDonald College, Quebec	Q
Massachusetts AES	Ma

The complete list of the prefixes assigned up to the present time is as follows:

List of Prefixes for Inbred Lines

Alabama	AB	Michigan	MS
Arizona	Ar	Minnesota	A
Arkansas	Ak	Mississippi	Mp
Canada, Harrow	CH	Missouri	Mo
" Morden	CM	Montana	Mt
" Ottawa	CO	Nebraska	N
" Quebec	Q	New Jersey	J.
Colorado	Co	New York	NY
Connecticut	C	North Carolina	NC
Florida	F	North Dakota	ND
Georgia	G	Ohio	Oh
Idaho	Id	Oklahoma	Ok.
Illinois	R	Pennsylvania	Pa
Indiana	H	South Carolina	SC
Iowa	B	South Dakota	SD
Kansas	K	Tennessee	T
Kentucky	Ky	Texas	Tx
Louisiana	L	U.S. Dept. Agr.	CI.
Maryland	Md	Virginia	Va
Massachusetts	Ma	West Virginia	WV
		Wisconsin	W

Data on Corn Borer Ratings

L. H. Penny presented data on the European corn borer leaf feeding ratings of 65 inbred lines. The lines were tested in 1953 and 1954 at Ankeny, Iowa both as lines and in 3-way crosses with 187-2 x ML4. The data on the lines and crosses are reported in table 7.

Table 7. A summary of European corn borer leaf feeding ratings of a group of inbred lines of corn and of testcrosses of those lines compared in 1953 and 1954 at Ankeny, Iowa.

Inbred line	: Corn borer leaf feeding rating					
	: Inbred line			: Line x (187-2 x ML4)		
	: 1953	: 1954	Mean	: 1953	: 1954	Mean
41.2504B	2.0	1.1	1.6	3.0	4.0	3.5
CI.31	1.5	1.8	1.7	3.8	4.1	4.0
H225 (Iowa)	1.8	1.6	1.7	3.0	4.4	3.7
(A392 x Mich.106) Sel.	2.0	2.1	2.1	6.0	6.6	6.3
MS7	2.0	2.9	2.5	4.3	5.5	4.9
(WF9 x 458-1) Sel.	2.5	2.5	2.5	3.5	6.6	5.1
(A344 x L317) Sel.	2.0	3.0	2.5	5.3	6.0	5.7
(A347 x K230) Sel.	2.0	3.1	2.6	4.8	6.6	5.7
N32	2.3	2.9	2.6	5.0	5.0	5.0
(38-11 x CI.7) Sel.	3.3	2.1	2.7	6.0	6.6	6.3
MS32	2.5	3.0	2.8	5.0	3.4	4.2
MS1	2.0	3.6	2.8	5.3	7.0	6.2
MS22	3.0	3.3	3.2	3.0	3.5	3.3
W22R	2.5	3.8	3.2	4.8	5.5	5.2
A298	2.8	3.5	3.2	4.0	6.8	5.4
Oh45	3.0	3.4	3.2	3.8	5.1	4.5
Oh43	4.0	2.4	3.2	4.5	6.8	5.7
(P8 x K230) Sel.	3.5	2.9	3.2	6.0	6.1	6.1
Oh41	2.3	4.4	3.4	5.8	3.8	4.8
Oh4C	3.3	3.5	3.4	3.5	5.3	4.4
A295	3.0	3.8	3.4	6.0	6.3	6.2
Ok.12	3.5	3.6	3.6	5.0	7.1	6.1
L317	3.3	3.9	3.6	4.3	4.5	4.4
R61	4.3	3.5	3.9	1.8	3.0	2.4
(P8 x 61-67) Sel.	3.5	4.4	4.0	3.0	6.0	4.5
Oh40B	4.3	3.6	4.0	6.3	6.0	6.2
MS8	3.8	4.4	4.1	6.0	7.0	6.5
HL6	4.5	3.9	4.2	8.0	8.0	8.0
A250	3.5	5.0	4.3	7.5	6.1	6.8
B16	4.0	5.0	4.5	6.0	7.1	6.6
W206B	3.5	5.6	4.6	5.5	7.5	6.5
A279	4.8	4.5	4.7	6.5	6.8	6.7
W38	4.3	5.3	4.8	6.0	7.0	6.5
B33	4.5	5.3	4.9	6.5	7.8	7.2
W22	4.3	5.5	4.9	8.0	7.5	7.8
W23	4.8	5.3	5.1	4.3	5.9	5.1

Table 7. (Cont'd.)

Inbred line	Corn borer leaf feeding rating					
	Inbred line			Line x (187-2 x M14)		
	1953	1954	Mean	1953	1954	Mean
W206D	4.3	5.9	5.1	6.3	7.6	7.0
B7	4.8	5.4	5.1	7.0	7.8	7.4
B8	4.0	6.4	5.2	7.3	8.0	7.7
A277	5.3	5.4	5.4	7.3	8.0	7.7
P8	4.8	6.0	5.4	6.3	7.0	6.7
R4	6.0	5.1	5.6	7.8	8.1	8.0
W112	6.8	4.4	5.6	3.8	6.0	4.9
B2	6.3	4.9	5.6	5.3	6.6	6.0
N1	5.3	5.9	5.6	4.8	7.3	6.1
Hy ²	5.5	6.0	5.8	6.8	7.0	6.9
C103	5.0	6.9	6.0	5.3	7.4	6.4
W158	5.5	6.5	6.0	6.0	7.5	6.8
(M/WF9) Sel.	6.5	5.6	6.1	5.8	8.0	6.9
A206	5.3	6.9	6.1	4.0	7.6	5.8
B25	6.3	6.3	6.3	6.0	7.5	6.8
B36	6.0	6.9	6.5	6.5	8.0	7.3
H5	6.0	7.3	6.7	6.8	7.9	7.4
(A334 x Oh07) Sel.	5.5	8.0	6.8	6.0	7.5	6.8
Oh51A	7.0	6.9	7.0	7.5	9.0	8.3
Os420	6.5	7.6	7.1	7.3	8.5	7.9
B15	6.8	7.5	7.2	6.3	8.3	7.3
A73	7.8	6.8	7.3	7.0	8.6	7.8
N6	7.3	7.6	7.5	6.3	8.5	7.4
B14	7.0	7.9	7.5	6.8	7.9	7.4
WF9	8.0	8.3	8.2	8.0	8.8	8.4
187-2	6.3	7.1	6.7	---	---	---
M14	7.3	7.9	7.6	---	---	---
187-2 x M14	---	---	---	8.5	8.5	8.5
187-2 x M14	---	---	---	8.0	8.4	8.2
Standard error of means	0.57	0.46		0.76	0.51	
Correlation coefficients:						
line 1953 vs line 1954				Phenotypic	Genotypic	
line 1953 vs testcross 1953				.84	.93	
line 1953 vs testcross 1954				.52	.64	
line 1954 vs testcross 1953				.70	.80	
line 1954 vs testcross 1954				.58	.71	
testcross 1953 vs testcross 1954				.73	.81	
				.73	.92	

Release of Blight Resistant Lines

M. T. Jenkins requested an expression of opinion on the question of releasing seed of some of the blight resistant lines developed at Beltsville. He indicated that these lines now have been tested in three-way crosses and the combining ability of the recoveries seems to be at least equal to that of the old lines. In addition they carry a considerable amount of blight resistance.

The sentiment of the group seemed to be strongly in favor of releasing these lines promptly. The question of similarity between the Beltsville recoveries and the Indiana blight recoveries was discussed. It appeared that the Indiana recoveries will not be ready for release for several years.

Discussions and New Business

E. H. Rinke suggested the possibility of arranging for cooperative winter nurseries in Florida. At the present time each experiment station makes its own arrangements in Florida and must send personnel there for the pollinating season. He indicated that there is considerable interest in the possibility of arrangements for cooperative plantings which would reduce costs and reduce the number of workers needed to look after the experiments. A survey of the group indicated that about 5 acres of nurseries are in use in Florida during the current season.

It was MOVED by E. H. Rinke that the Chairman appoint a committee of three to look into the possibility of cooperative arrangements for Florida plantings.

Motion seconded by J. H. Lonquist and passed

Chairman Jugenheimer appointed the following members of this committee:

E. H. Rinke
A. M. Strommen
G. H. Stringfield, Chairman

E. R. Leng reported on experiments with the Kys sterile in Florida. He indicated that he and L. H. Bauman now have indisputable evidence that Kys cytoplasm is not essential to the expression of sterility. Reciprocal crosses grown in Florida this year gave the same segregations for sterility in the "fertile" cytoplasm of 38-11, WF9 and Hy2 as in the "sterile"

cytoplasm of Kys. He suggested that work now in progress on the transfer of the Kys sterile to inbred lines should be held up until its action is more completely understood.

A. J. Ullstrup discussed the question of stalk rot and briefly explained some of the testing methods now in use. These methods already have been described in the literature by Koehler and by Sprague. The practice in Indiana has been to inoculate with Diplodia infected toothpicks. Dr. Ullstrup explained that this is a rather drastic procedure but that the results seem to correlate with data obtained under natural infection. He indicated that the three organisms primarily involved in stalk rot are Diplodia zeae, Gibberella zeae, and Sclerotium bataticola.

The question of radiation experiments and the possibility of radiation breeding was briefly discussed. D. E. Alexander mentioned some of the work of W. R. Singleton in this connection and suggested that radiation breeding seemed to be of most promise in producing variations for a specific character in a genetic background already desirable for other characteristics. He questioned the desirability of starting radiation work without a specific objective and a definite procedure for identifying the change desired. Lonnquist mentioned some of the radiation work conducted at Nebraska with neutrons. Alexander mentioned work with ultraviolet treatment on pollen of Ky27.

G. H. Stringfield mentioned that detailed description of some 60 or 70 inbred lines had been prepared by D. R. Butler, Pennsylvania Farm Bureau, Harrisburg, Pennsylvania. He indicated that there was a possibility that the descriptions might be mimeographed if there was interest in them.

E. H. Pinnell suggested that additional work could well be done on the cold testing of inbred lines. He would particularly like to see more detailed evaluation of early lines in this respect.

G. F. H. Buckley expressed appreciation for the opportunity of C. G. Mortimore and himself of attending the Committee meeting.

William Wiidakas asked about the amount of corn borer infestation and the estimated infestation for the coming season. In reply F. F. Dicke indicated that it is not possible to accurately predict the 1955 corn borer infestation. There seems to be a high population of borers but many things can happen between now and next June to effect the 1955 population.

N. P. Neal announced the recent publication of Wisconsin Bulletin 507, "Cold Testing Seed Corn" by Paul E. Hoppe.

Election of Officers

M. T. Jenkins was elected secretary for the ensuing year.

Time and Place of Next Meeting

It was MOVED by E. H. Rinke that the 1956 meeting be scheduled for the first Tuesday and Wednesday of March.

Motion seconded by G. F. Sprague and
passed

Meeting adjourned at 12 noon

Respectfully submitted,

Merle T. Jenkins
Secretary